



The Effects of Family-Based Literacy Preparation Program on Children's Literacy Preparation Skills *

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Abstract

In accordance with characteristics of pre-school children's development, families' interest, need, and expectations, and pre-school education and elementary programs, it was aimed to determine the effects of family-based literacy preparation program on children's literacy preparation skills. In the current study, an experimental design with pre/post tests and a control group was used in order to reveal the effectiveness of the Family-Based Literacy Preparation Program. The independent variable in the current study conducted in a 3x3 (three groups: experiment, placebo, and control groups, with 3 measurements: pretest, posttest, and follow-up test) experimental research design was the Family-Based Literacy Preparation Program. The dependent variable in the current study was children's literacy preparation skills. Families in the experiment group received a 23-session treatment. Seminars for a period of 20 weeks were organized for the placebo group and the control group did not receive any treatment. The study group in the current research was selected from among the children attending kindergarten within a public elementary school in Etimesgut, Ankara, Turkey, during 2012-2013 academic years, and their families. In order to obtain data on the effects of applied Family-Based Literacy Preparation Program on children's literacy preparation skills, Phonological Awareness Scale, Vocabulary and Writing Awareness Scale, Turkish Expressive and Recipient Language Skills Test (TİFALDİ), and Frostig Visual Perception Test were used. In the current research, covariance analysis (ANCOVA) was conducted in order to define the effects of Family-Based Literacy Preparation Program on children's early literacy skills. Results of the follow-up test were analyzed through t-test. When the permanence of program effect on children's literacy preparation skills was examined, it was observed that Family Based Literacy Preparation Program was effective on the development of children's sound awareness, visual perception, vocabulary, expressive and recipient language skills and this was a long-term effect.

Keywords

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Introduction

Individuals' well-grounded literacy, the increase in their interest and motivation towards literacy, and associating literacy with life-long learning are based on early literacy preparation efforts. Pre-school period is a critical stage when the child acquires information and many skills within social, emotional, cognitive, and psychomotor perspectives, as well as basic literacy knowledge, skills, attitudes, and habits. Knowledge and experience acquired in early ages is so powerful as to shape the child's later life.

Within the literacy preparation efforts in pre-school education institutions, visual perception studies, audio perception studies, development of vocabulary and oral expression, skills of listening to, understanding, and following instructions, working on the development of pencil holding and hands-on skills, increasing attention span and focus, memory development, and enhancement of confidence and independent behavior are proposed (MEGEP, 2007). Planned activities provided at pre-school education institutions, as well as opportunities that the child encounters daily support the literacy preparation skills. Therefore, in this process, families' appreciation of literacy, their attitudes and behaviors – in other words, families' role and responsibility in the process of literacy preparation – are highlighted.

Family literacy is about literacy beliefs and practices among family members and the literacy passed down (Wasik & Herrmann, 2004). Research on literacy beliefs, attitudes, and behaviors among families and the relationship between children's language and literacy skills point out to the opportunities provided to children in early ages. Sonnenschein (2002) stated that families' beliefs about reading and learning to read influence their activities and how they interact with their children in these activities.

Weigel and Martin (2007), in their study titled "Basics of Literacy Activity", state that children develop stronger literacy and language skills when parents attached importance to their role in children's development of literacy and language skills, regularly do activities around literacy and language skills with children, and organize home environment to support literacy and language. It is also stated that the process of acquiring literacy skills is made easier when parents are role models of literacy and when they interact with responsible persons and institutions on child's behalf. In another study conducted to investigate the contribution of home literacy environment in pre-school children's development of literacy and language skills, Weigel, Martin, and Bennett (2006) aimed to examine the temporary and long-term relationships between multiple indicators of pre-school children's development of literacy and language and the components of home environment. The study results showed that a) parents' literacy habits were related with their reading beliefs b) parents' reading beliefs were associated with parent-child activities of literacy and language and c) parent-child literacy and language activities were mostly positively related with the child's writing and reading knowledge. In other words, it was stated that parents' participation in pre-school children's literacy and language activities was positively associated with writing knowledge and interest in reading. It was observed that children's writing skills developed more and they were more interested in reading books when parents read aloud to their children, kept illustrated books at home, went to library with their children, let them memorize nursery rhymes with them, told them stories, let children draw pictures, and played with them. Results of this study, investigating families' influence on children's literacy skills development, showed that families' literacy preparation attitudes and behaviors were related with their previously attained information and acquired experiences.

Swain, Brooks, and Bosley (2014), in their longitudinal study to determine perceptions and experiences of families who participated in a family literacy program, aimed to define short and long-term benefits of the program. 12 weeks later, interviews were conducted with 101 families which participating in the 74 different family literacy program. Findings obtained in the research showed that these programs provided many long-term benefits to families, children, and society. Some of the benefits are as follows. Having knowledge about how they support the learning of the children of families; they are willing to participate in their children's education; should take the initiative to improve their literacy skills, understanding of development-related education systems.

Anderson, Anderson, and Teichert (2013), a small village in Canada developed and implemented locally for a family literacy program, with 10 families in the working class were interviewed using a semi-structured protocol. The interviews were transcribed and coded according to the theme. Surveyed families, thanks to the structure that contains the program's active participation in their work with children to learn through play and developmentally appropriate curriculum and pedagogy that they were easier to understand. How they gain knowledge and skills that they can support their children's learning at home, they are more comfortable in school and have stated that they see more participation in activities there. Both for themselves and their families also stressed that the program will contribute to a child's social development.

Considering the effects of families' attitudes and behaviors toward literacy preparation on children's early literacy skills, it is important to raise awareness of literacy preparation and let families gain knowledge and skills as to how they can help children. However, limited content of activities in family education in our country and not approaching literacy preparation on the family level are important inefficiencies. Developing and extending programs to meet this need will contribute to form early literacy interest and habits. Within this context, in accordance with characteristics of pre-school children's development, families' interest, need, and expectations, and pre-school education and elementary programs, it was aimed to determine the effects of family-based literacy preparation program on children's literacy preparation skills. Following are the sub-questions in the current research for the mentioned purpose:

- Are there any significant differences between expressive and recipient language skills, phonological awareness skills, vocabulary and writing awareness skills, and visual perception skills of children participating and non-participating in the Family-Based Literacy Preparation Program?
- Based on the follow up test, what is the level of increase in the literacy preparation skills (expressive and recipient language, phonological awareness, visual perception, vocabulary, and writing awareness skills) of children who participated in the Family-Based Literacy Preparation Program, compared with those of children who did not participate in the program?

Method

In the current study, an experimental design with pre/post tests and a control group was used in order to reveal the effectiveness of the Family-Based Literacy Preparation Program. The independent variable in the current study conducted in a 3x3 (three groups: experiment, placebo, and control groups, with 3 measurements: pretest, posttest, and follow-up test) experimental research design was the Family-Based Literacy Preparation Program. The dependent variable in the current study was children's literacy preparation skills. Possible confounding variables must be controlled when the effect of a variable on another is studied. Therefore, a placebo group as well as a control group was included in the current study in order to show that the change in children's literacy preparation skills was due to the treatment program and not to let the expectation as a confounding variable to affect the results. The experiment group in the current study consisted of parents and children who participated in the Family-Based Literacy Preparation Program and control group included those who did not participate in the program. Families in the experiment group received a 23-session treatment. Seminars for a period of 20 weeks were organized for the placebo group and the control group did not receive any treatment.

Participants

Participants of this study were selected among children who go to a kindergarten which is placed at a primary school in Ankara at 2012- 2013 education year and their families. This primary school was chosen for this study because of these following reasons: a) children who study at this school are coming from low and middle income families, b) school manager offers good working conditions to collect the data of the study, c) teachers are open to cooperation and d) easy access. Purposive sampling was used in this study. Purposive sampling is a sampling method which is probable and not random. This sampling is preferred when researcher wants to work on one or more special conditions which meet certain criteria or have certain characteristics (Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz, & Demirel, 2012). Numbers of participants in experiment, placebo, and control groups were initially decided as 60, 20 in each. However, 2 mothers in experiment group and 3 in placebo were not able to continue to attend for various excuses. Therefore, although each group initially had 20 participants, the current research was conducted with 18 participants in the experiment, 17 in placebo, and 20 in control groups. 34.5% of the mothers in the study group were graduates of middle school; 27.3% were graduates of elementary school; and 36.4% graduated in high school. A total of 55 children, 26 females and 29 males, in experiment, control, and placebo groups participated in the current research.

Measures

In order to obtain data on the effects of applied Family-Based Literacy Preparation Program on children's literacy preparation skills, Phonological Awareness Scale, Vocabulary and Writing Awareness Scale, Turkish Expressive and Recipient Language Skills Test (TİFALDİ), and Frostig Visual Perception Test were used. Phonological Awareness Scale was developed by Yangın, Erdoğan, and Erdoğan (2008) in order to measure children's sensitivity towards sound. Children are asked various questions during the application of the scale consisting of 5 tasks with 7 items each in total 35 items. Each right answer is scored 1 and each incorrect answer is scored 0. In order to define whether the program affects children's vocabulary skills, "Preschool Word and Print Awareness" tool adopted in

Turkish by Bayraktar (2013) was used. The test consists of two sections: *Print Concepts* (such as name of the book, front cover, back cover, title, front print, function of the print, and letter concept) and *Word Recognition* (such as short, longer, first, and last words, the word count on the page). One story book is used for each section. Right answers receive 1 point and incorrect answers receive 0 points. On the 4th, 5th, and 12th items of the print concepts sub-test, 0, 1, and 2 points are available. Turkish Expressive and Recipient Language Skills Test (TİFALDİ), developed by Kazak Berument and Gül Güven (2010), is used for evaluating children's vocabulary gains and uses. TİFALDİ, consisting of expressive and recipient vocabulary sub-tests, is given to 2-12 age-group children, native in Turkish. Frostig Visual Perception Test, developed by Marianne Frostig, consists of 5 sub-tests aiming to measure perceptive skills. Sub-tests are: 1) Eye-Motor Coordination (EMC), 2) Figure-Ground Perception (FGP), 3) Perception of Form Constancy (FC), 4) Perception of Position in Space (PPS), and 5) Perception of Spatial Relationships (PSR).

Data Analysis

In the current research, covariance analysis (ANCOVA) was conducted in order to define the effects of Family-Based Literacy Preparation Program on children's early literacy skills. To test the main hypothesis in the current study, whether the assumptions were met was seen before conducting the covariance analysis. Basic assumptions of this analysis are: normal distribution of the measurements, placement of measurements at feeler gauge, linear relationship between measurements of pre experimental and post experimental, equal slope of regression lines that serve to estimate post experimental measurements based on measurements at pre-experimental (Büyüköztürk, 2011). The data obtained from pretest and posttest evaluations transferred to SPSS 16.0 and statistical significance level was agreed .05 at data analysis. As a result of meeting the assumptions, covariance analysis (ANCOVA) was used. After assumptions were met, covariance analysis (ANCOVA) was found relevant to conduct. In order to compare the posttest scores that the groups obtained in subtests, *single-factor covariance analysis* (ANCOVA) was conducted. Bonferroni test was used among the corrected posttest scores of the groups and the significant difference between the groups was defined according to the results of this test. A follow-up test was conducted, four months later, to determine whether the Family-Based Literacy Preparation Program, designed by the researcher, has long-term effects. Results of the follow-up test were analyzed through *t-test*. Gathered data were analyzed with SPSS 16 statistical pack software; when interpreting the results, a significance level of .05 was set.

Results and Discussion

The effects of Family-Based Literacy Preparation Program on the recipient and expressive language, phonological awareness, word and print awareness, and visual perception skills of children, assigned to experiment, control, and placebo groups, were examined and obtained findings were presented separately. Table 1 includes Turkish Expressive and Recipient Language Skills Test (TİFALDİ) posttest average scores and pretest-based corrected posttest average scores.

Table 1. Descriptive Statistics of Children's TIFALDI Test Sub-Dimensions and Total Posttest (Standard Scores and Equivalent Age) Scores based on Groups

Sub-dimensions	Age	Groups	N	Average	Corrected Average
Recipient Language	Standard Scores	Experiment	18	105,22	105,40
		Control	20	98,75	98,74
		Placebo	17	99,35	99,19
	Equivalent Age	Experiment	18	73,39	73,49
		Control	20	65,65	65,97
		Placebo	17	66,82	66,26
Expressive Language	Standard Scores	Experiment	18	108,72	108,50
		Control	20	94,80	95,47
		Placebo	17	95,88	95,35
	Equivalent Age	Experiment	18	75,11	74,83
		Control	20	59,60	60,85
		Placebo	17	61,53	60,35
Total	Standard Scores	Experiment	18	213,94	213,9
		Control	20	193,55	194,3
		Placebo	17	195,24	194,5
	Equivalent Age	Experiment	18	148,40	148,5
		Control	20	127,00	125,25
		Placebo	17	126,50	128,35

Upon examining Table 1, it can be stated that, based on the corrected average scores, experiment group had higher average scores compared with control and placebo groups. On the dimensions of recipient language, expressive language, and total scores, experiment group had the highest score and placebo group followed that, and the control group had the lowest average scores. Table 2 includes the results of ANCOVA conducted in order to determine whether the observed difference between groups' TIFALDI sub-test dimensions and the corrected posttest average scores based on the scale total was significant.

Table 2. ANCOVA Results on the Corrected Posttest Scores based on TIFALDI Scale Pre-Test Scores

Sub-dimensions	Score	Source	Sum of Squares	sd	Mean of Squares	F	p
Recipient Language	Standard Scores	Pre-Test	337,36	1	337,36	31,66	0,00
		Group	503,51	2	251,75	23,63	0,00*
		Error	543,38	51	10,65		
		Total	563010	55			
	Equivalent Age	Pre-Test	1540,25	1	1540,25	115	0,00
		Group	660,01	2	330,00	24,64	0,00*
		Error	683,05	51	13,39		
		Total	261280	55			
Expressive Language	Standard Scores	Pre-Test	845,78	1	845,78	68,82	0,00
		Group	2063,05	2	1031,53	83,93	0,00*
		Error	626,79	51	12,29		
		Total	550271	55			
	Equivalent Age	Pre-Test	3385,88	1	3385,88	209,83	0,00
		Group	2446,55	2	1223,27	75,81	0,00*
		Error	822,93	51	16,14		
		Total	241162	55			
Total	Standard Scores	Pre-Test	2359,82	1	2359,82	103,12	0,00
		Group	4595,94	2	2297,97	100,41	0,00*
		Error	1167,14	51	22,88		
		Total	2224645	55			
	Equivalent Age	Pre-Test	9512,82	1	9512,82	254,37	0,00
		Group	5675,77	2	5675,77	75,88	0,00*
		Error	1907,31	51	1907,31		
		Total	1002178	55			

As seen in Table 2, it was found that the difference between the corrected posttest average scores of, respectively, the experiment, control, and placebo groups, based on expressive language standard scores, expressive language standard scores, and total pre-test scores, was significant [$F(1,55)=23,63$, $F(1,55)=24,64$, $F(1,55)=83,93$, $F(1,55)=75,81$, $F(1,55)=100,41$, $F(1,55)=75,88$; $p<0,05$]. This finding shows that the experimental treatment resulted in the difference on children's recipient language, expressive language, and total score dimensions. Based on the results of Bonferroni Test conducted among the corrected posttest scores in groups, standard scores of the children in experiment group on scale sub-dimensions and total standard score ($\bar{X}=105,40$, $\bar{X}=108,50$, total: $\bar{X}=213,9$) was higher than those of children both in control ($\bar{X}=98,74$, $\bar{X}=95,47$, $\bar{X}=194,3$) and placebo ($\bar{X}=99,19$, $\bar{X}=95,35$, $\bar{X}=194,5$) groups. In short, it is observed that children's posttest scores in the experiment group were higher than those of children in control and placebo groups. In addition, average scores of children in placebo group were a little higher than those of children in the control group. In conclusion, when TIFALDI Test sub-dimensions and scale overall scores are considered, it is observed that there is significant difference among experiment, control, and placebo groups, in favor of the experiment group. These findings obtained show that Family-Based Literacy Preparation Program was effective on children's recipient and expressive language skills. According to Wasik and Herrmann (2004), acquiring early literacy skills for a child is undoubtedly a cognitive process influenced by the cultural and social contexts where the child is. In this regard, children's language skills are largely affected by the possibilities presented to them in their living environment. In their study, Storch and Whitehurst (2001) found that literacy medium provided at home had a significant role on the child's early development. Storch and

Whitehurst (2001) state that literacy medium and parents' characteristics (such as IQ and education level) combined directly contribute in pre-school children's skills of analyzing meanings in logos (e.g. getting word meanings, decipher the narration and story language in logos) and bring along a 40% rate of change. These researchers emphasize that there is a continuum of reading and pre-reading skills and language skills from preschool to second grade. It is shown that higher literacy medium at home is linked to reading comprehension skill at preschool and high performance in general knowledge and language tests.

Press (2008) conducted a study among 367 African American, White, and Latin American parents with children of age 4. Environment (e.g. reading with children, duration of together reading, number of books, trips to libraries, and children's wishes about books read to them) was seriously effective even after controlling variables such as parents' expectations and characteristics (e.g. education level, home language, and vocabulary), family, and children's ages. Within the current research, experiment-group children getting higher scores than others provokes the thought that these children may have had better literacy opportunities at home. Through the Family-Based Literacy Preparation Program, children's early literacy skills will be positively influenced when families have experiences to increase verbal interactions with their children and, based on these experiences, they create a home medium to share these experiences. Families' putting the knowledge and skills that they had learned during this process into practice may have prompted the children's high scores on Turkish Expressive and Recipient Language Test.

Findings Associated with the Effects of the Program on Children's Phonological Awareness Skills

Table 3 includes the corrected posttest average scores of children assigned in experiment, control, and placebo groups, based on their Phonological Awareness Scale posttest average scores and pretest scores.

Table 3. Descriptive Statistics of Children's Phonological Awareness Scale Posttest Scores based on Groups

Sub-dimensions	Groups	N	Average	Corrected Average
Being aware of sentences comprised of words	Experiment	18	6,05	6,12
	Control	20	4,05	3,97
	Placebo	17	4,18	4,20
Being aware of the possibility that words may be rhyming	Experiment	18	6,11	6,03
	Control	20	4,55	4,52
	Placebo	17	4,59	4,69
Being aware of the words may begin with the same letter	Experiment	18	5,83	5,81
	Control	20	3,90	3,87
	Placebo	17	4,12	4,17
Being aware of the words are comprised of syllabi	Experiment	18	5,44	5,49
	Control	20	2,70	2,70
	Placebo	17	2,76	2,71
Being aware of the words may end with the same sound	Experiment	18	6,22	6,23
	Control	20	2,95	3,05
	Placebo	17	3,41	3,28
Total	Experiment	18	27,17	27,13
	Control	20	17,65	17,62
	Placebo	17	17,88	17,96

Upon examining Table 3, it can be stated that, based on corrected average scores, experiment group had higher average scores, compared with control and placebo groups. Experiment group had the highest average score; placebo group followed and the control group had the lowest average scores. Table 4 includes the results of ANCOVA conducted in order to determine whether the observed difference between groups' Phonological Awareness Scale sub-dimensions and the corrected posttest average scores based on the scale total was significant.

Table 4. ANCOVA Results on the Corrected Posttest Scores based on Phonological Awareness Scale Pre-Test Scores

Sub-dimensions	Source	Sum of Squares	sd	Mean of Squares	F	p
Being aware of sentences comprised of words	Pre-Test	10,22	1	10,22	8,97	0,00
	Group	50,22	2	25,11	22,02	0,00*
	Error	58,14	51	1,14		
	Total	1353	55			
Being aware of the possibility that words may be rhyming	Pre-Test	6,39	1	6,39	8,94	0,00
	Group	24,35	2	12,18	17,03	0,00*
	Error	36,45	51	0,71		
	Total	1487	55			
Being aware of the words may begin with the same letter	Pre-Test	1,90	1	1,90	2,19	0,14
	Group	40,28	2	20,14	23,25	0,00*
	Error	44,16	51	0,87		
	Total	1251	55			
Being aware of the words are comprised of syllabi	Pre-Test	7,38	1	7,38	4,69	0,03
	Group	92,86	2	46,43	29,48	0,00*
	Error	80,32	51	1,57		
	Total	897	55			
Being aware of the words may end with the same sound	Pre-Test	3,54	1	3,54	3,08	0,08
	Group	114,58	2	57,29	49,83	0,00*
	Error	58,64	51	1,15		
	Total	1131	55			
Total	Pre-Test	293,72	1	293,72	52,18	0,00
	Group	1060,78	2	530,39	94,22	0,00*
	Error	287,10	51	5,63		
	Total	2553,00	55			

According to Table 4, it was found that the difference between the corrected posttest average scores of, respectively, the experiment, control, and placebo groups, based on sub-dimensions of being aware of sentences comprised of words, being aware of the possibility that words may be rhyming, that words may begin with the same letter, that the words are comprised of syllabi, and that the words may end with the same sound, and total pre-test scores, was significant [F(1,55)=22,02, F(1,55)=17,03, F(1,55)=23,25, F(1,55)=29,48, F(1,55)=49,83, F(1,55)=94,22; p<0,05]. This finding shows that the experimental treatment conducted resulted in the difference on children's Phonological Awareness Scale sub-dimensions and total test scores. Based on this, according to the results of Bonferroni Test conducted among the corrected posttest scores in groups, Phonological Awareness Scale scores of the children in experiment group (\bar{X} =6,12, \bar{X} =6,03, \bar{X} =5,81, \bar{X} =5,49, \bar{X} =6,23, Total: \bar{X} =27,13) was higher than those of children both in control (\bar{X} =3,97, \bar{X} =4,52, \bar{X} =3,87, \bar{X} =2,70, \bar{X} =3,05, Total: \bar{X} =17,62) and placebo (\bar{X} =4,20, \bar{X} =4,69, \bar{X} =4,17, \bar{X} =2,71, \bar{X} =3,28, Total: \bar{X} =17,96) groups. In conclusion, when Phonological Awareness Scale sub-dimensions and scale overall scores are considered, it is observed that there is significant difference among experiment, control, and placebo groups, in favor of the experiment group. These findings obtained show that Family-Based Literacy Preparation Program was effective on children's phonological awareness skills.

Children were able to point out to rhyming, beginning letters, and parts smaller than syllabi. However, because syllabi are easier for children, they learn them naturally. It is a bit more difficult for them to notice smaller parts. Therefore, children must be presented with experiences where they can notice rhymes in books, songs, and poems (McGee & Morrow, 2005). According to Weigel et al. (2006), literacy activities at home are importantly associated with letter knowledge, phonological awareness, expressive language and interest in literacy. According to Phillips, Menchetti, and Lonigan (2008), children acquire phonological awareness skill through books read to them and the communicative and interactive medium provided to them along with verbal language skills. The child, beginning to examine the sound structures in this process, takes important steps in literacy preparation because the development of this skill assists children later to understand the letter-sound relations and lets them have an easier transition to literacy. Bracken and Fischel (2008) state that children can learn phonological awareness skills, alphabetical knowledge, and perception, through interactive reading. Within the Family-Based Literacy Preparation Program, Families were presented with examples of songs, riddles, tongue twisters, finger games, and words beginning and ending in the same sound, through which they can support their children's sound awareness skills. In addition, the importance of reading books for children's phonological awareness development was emphasized and during the program, families were able to regularly read books to their children. Families' putting the knowledge and skills that they had learned by interacting with their children during this process into practice at home may have prompted the children's high scores on phonological awareness. Table 5 includes the corrected posttest average scores of children assigned in experiment, control, and placebo groups, based on their Word and Print Awareness Scale posttest average scores and pretest scores.

Table 5. Descriptive Statistics of Children's Word and Print Awareness Scale Scores based on Groups

Sub-dimensions	Groups	N	Average	Corrected Average
Word recognition	Experiment	18	15,17	14,45
	Control	20	10,05	10,52
	Placebo	17	9,82	10,03
Print Concepts	Experiment	18	9,94	9,97
	Control	20	5,50	5,69
	Placebo	17	5,88	5,64
Total	Experiment	18	25,11	24,43
	Control	20	15,55	16,23
	Placebo	17	15,70	15,63

Upon examining Table 5, it can be stated that, based on corrected average scores, experiment group had higher average scores, compared with control and placebo groups. Experiment group had the highest average score; placebo group followed and the control group had the lowest average scores. Table 6 includes the results of ANCOVA conducted in order to determine whether the observed difference between groups' Word and Print Awareness Scale sub-dimensions and the corrected posttest average scores based on the scale total was significant.

Table 6. ANCOVA Results on the Corrected Posttest Scores based on Word and Print Awareness Scale Pre-Test Scores

Sub-dimensions	Source	Sum of Squares	sd	Mean of Squares	F	p
Word recognition	Pre-Test	88,95	1	88,95	96,57	0,00
	Group	183,87	2	91,93	99,81	0,00*
	Error	46,97	51	0,92		
	Total	7937,00	55			
Print concepts	Pre-Test	78,01	1	78,01	100,24	0,00
	Group	224,07	2	112,04	143,94	0,00*
	Error	39,69	51	0,77		
	Total	3091,00	55			
Total	Pre-Test	344,46	1	344,46	154,37	0,00
	Group	845,007	2	422,50	189,35	0,00*
	Error	113,80	51	2,23		
	Total	1548,90	54			

According to Table 6, it was found that the difference between the corrected posttest average scores of, respectively, the experiment, control, and placebo groups, based on sub-dimensions of word recognition and print concepts, and total pre-test scores, was significant [F(1,55)=99,81, F(1,55)=143,94, F(1,55)=189,35; p<0,05]. This finding shows that the experimental treatment conducted resulted in the difference on children's Word and Print Awareness Scale sub-dimensions and total test scores. Based on this, according to the results of Bonferroni Test conducted among the corrected posttest scores in groups, Word and Print Awareness Scale scores of the children in experiment group ($\bar{X}=14,45$, $\bar{X}=9,97$, total: $\bar{X}=24,43$) was higher than those of children both in control ($\bar{X}=10,52$, $\bar{X}=5,69$, total: $\bar{X}=16,23$) and placebo ($\bar{X}=10,03$, $\bar{X}=5,64$, total: $\bar{X}=15,63$) groups. In conclusion, when Word and Print Awareness Scale sub-dimensions and scale overall scores are considered, it is observed that there is significant difference among experiment, control, and placebo groups, in favor of the experiment group. These findings obtained show that Family-Based Literacy Preparation Program was effective on children's word and print awareness skills.

Many researchers emphasize that, within the home-based literacy activities, there is a positive relationship between the quality of family-child interaction and children's early literacy skills, and literacy skills attitudes. Reese and Cox investigated the quality of family activity of reading books to preschool age children. Researchers found a relationship between explanatory reading style and children's word knowledge and print awareness (as cited in Press, 2008). Horner (2004), Lefebvre, Tredeau, and Suttun (2011) studied the effect of reading aloud on children's print awareness and letter knowledge. Findings obtained in the research showed that reading aloud was effective in children's development of print and letter knowledge. Samuelsson et al. (2005), in their study with participants from different countries, stated that Scandinavian children were less print-aware compared with children from other nations, due to inadequate family-child literacy activities. In all the countries that the said research covered, it was found that verbal abilities and print awareness were directly associated with literacy activities at home. Byrne et al. (2006) emphasized that environment was more effective than genetic factors in the development of print awareness skill. Within this context, families participating in the Family-Based Literacy Preparation Program were offered suggestions on the importance of print, areas of use, and awareness of print concepts and families learned activities of cutting/pasting/painting that they could do with their children. Such activities support the children's print awareness positively. It may be said that children's skills associated with print awareness increased through families' activities with their children within the program, saving these activities in families' daily course of action, and sharing their experiences in each session. In addition, many studies emphasized that reading books was quite effective in the development of children's print awareness

(Lefebvre et al., 2011; Horner, 2004; Justice & Ezell, 2002). Reading books to children every day is an important component in the Family-Based Literacy Preparation Program. Within the program, families were expected to read books to their children each day and share their experiences with other participants in sessions. This component also is thought to have been effective in pulling the participant children's skills associated with word and print awareness to a better level as a result of the research.

Table 7 includes the corrected posttest average scores of children assigned in experiment, control, and placebo groups, based on their Frostig Visual Perception Scale posttest average scores and pretest scores.

Table 7. Descriptive Statistics of Children's Frostig Visual Perception Scale Scores based on Groups

Sub-dimensions	Groups	N	Average	Corrected Average
Eye-motor coordination	Experiment	18	45,33	44,98
	Control	20	44,70	44,85
	Placebo	17	44,70	44,90
Figure ground perception	Experiment	18	95,28	94,91
	Control	20	76,95	77,11
	Placebo	17	77,06	77,26
Form constancy	Experiment	18	65,22	64,85
	Control	20	56,85	57,01
	Placebo	17	56,47	56,68
Position in space	Experiment	18	75,11	74,75
	Control	20	66,80	66,96
	Placebo	17	66,23	66,44
Spatial relationships	Experiment	18	55,55	55,17
	Control	20	46,70	46,87
	Placebo	17	46,18	46,39
Total	Experiment	18	336,50	334,72
	Control	20	292,00	292,82
	Placebo	17	290,65	291,71

Upon examining Table 7, it can be stated that, based on corrected average scores, experiment group had higher average scores, compared with control and placebo groups. Experiment group had the highest average score; placebo group followed and the control group had the lowest average scores. Table 8 includes the results of ANCOVA conducted in order to determine whether the observed difference between groups' Frostig Visual Perception Scale sub-dimensions and the corrected posttest average scores based on the scale total was significant.

Table 8. ANCOVA Results on the Corrected Posttest Scores based on Frostig Visual Perception Scale Pre-Test Scores

Sub-dimensions	Source	Sum of Squares	sd	Mean of Squares	F	p
Eye-motor coordination	Pre-Test	1043,09	1	1043,09		0,00
	Group	,14	2	0,07	319,8	0,00*
	Error	16,63	51	0,32	,222	
	Total	111990,00	55			
Figure ground perception	Pre-Test	1082,69	1	1082,69		0,00
	Group	3797,90	2	1898,95	222,5	0,80
	Error	24,82	51	0,487	390,33	
	Total	383882,00	55			
Form constancy	Pre-Test	1140,21	1	1140,21		0,00
	Group	772,09	2	386,04	268,2	0,00*
	Error	21,68	51	0,425	908,02	
	Total	196583,00	55			
Position in space	Pre-Test	1094,46	1	1094,46		0,00
	Group	780,37	2	390,18	166,3	0,00*
	Error	33,57	51	0,658	592,74	
	Total	266504,00	55			
Spatial relationships	Pre-Test	1212,27	1	1212,27		0,00
	Group	879,28	2	439,64	328,1	0,00*
	Error	18,84	51	0,37	119,03	
	Total	136653,00	55			
Total	Pre-Test	27845,14	1	27845,14		0,00
	Group	21694,96	2	10847,48	113,4	0,00*
	Error	125,23	51	2,45	441,73	
	Total	5207518,00	55			

According to Table 8, it was found that the difference between the corrected posttest average scores of, respectively, the experiment, control, and placebo groups, based on sub-dimensions of eye-motor coordination, form constancy, perception of position in space, and perception of spatial relationships, and total pre-test scores, was significant [$F(1,55)=,222$, $F(1,55)=908,02$, $F(1,55)=592,74$, $F(1,55)=119,03$, $F(1,55)=441,73$; $p<0,05$]. This finding shows that the experimental treatment conducted resulted in the difference on children's Frostig Visual Perception Scale sub-dimensions and total test scores. Based on this, according to the results of Bonferroni Test conducted among the corrected posttest scores in groups, Frostig Visual Perception Scale scores of the children in experiment group ($\bar{X}=44,98$, $\bar{X}=94,91$, $\bar{X}=64,85$, $\bar{X}=74,75$, $\bar{X}=55,17$, total: $\bar{X}=334,72$) was higher than those of children both in control ($\bar{X}=44,85$, $\bar{X}=77,11$, $\bar{X}=57,01$, $\bar{X}=66,96$, $\bar{X}=46,87$, total: $\bar{X}=292,82$) and placebo ($\bar{X}=44,90$, $\bar{X}=77,26$, $\bar{X}=56,68$, $\bar{X}=66,44$, $\bar{X}=46,39$, total: $\bar{X}=291,71$) groups. In conclusion, when Frostig Visual Perception Scale sub-dimensions and scale overall scores are considered, it is observed that there is significant difference among experiment, control, and placebo groups, in favor of the experiment group. These findings obtained show that Family-Based Literacy Preparation Program was effective on children's visual perception skills.

It was found that family participation in literacy activities largely enhanced children's reading and language skills (Evans, Shaw, & Bell, 2000; Senechal & LeFevre, 2002; Saracho, 2007). The studies conducted investigated the effects of visual perception education provided to children on visual perception levels, reading maturity, and the development of reading skills. According to the results of studies, it was determined that reading maturity and skills of children who received visual perception education were on better levels compared with those of children who received no visual perception

education (Arikök, 2001; Tuğrul, Aral, Erkan, & Etikan, 2001; Yüksel, 2009; Akaroğlu & Dereli, 2012; Dankert, Davies, & Gavin, 2003; Ratzon, Efraim, & Bart, 2007; Navah, Orit, Shifra, & Yehiela, 2009). Within this context, children's early experiences considerably support the development of visual perception skill, as one of the early literacy skills. Powell (2004) points out that the children's rich experiences are associated with families' approach to literacy and the materials provided by them to children. It is obvious that families play an important role about children's literacy skills. Therefore, families, within the Family Based Literacy Preparation Program, acquired information and skills about the strategies practiced at home to support children's visual perception skills (Eye-Motor Coordination (EMC), Figure-Ground Perception (FGP), Perception of Form Constancy (FC), Perception of Position in Space (PPS), and Perception of Spatial Relationships (PSR)) and the materials used. It can be said that participant families contributed in children's visual perception skills through provision of medium, interaction, and experiences to develop literacy.

Data on the Permanence of the Program

In order to measure the permanence of the change in experiment-group children's literacy preparation skills, follow-up tests were conducted 4 months after posttests. Arithmetic averages, standard deviation, and dependent group t-test results of scores obtained in posttests and follow-up tests were separately calculated.

Table 9 includes the results of follow-up test conducted in order to measure the permanency of experiment-group children's expressive and recipient language skills.

Table 9. T-Test results of Expressive Language and Recipient Language (TIFALDI) Posttest and Follow-up Test Scores in Experiment, Control, and Placebo Groups

Turkish Expressive Language and Recipient Language Test		Posttest		Follow-up test				
		\bar{X}	Ss	\bar{X}	Ss	sd	t	p
EXPERIMENT (n:18)	Sub-dimension 1	105,22	4,50	106,06	4,87	17	2,48	,024*
	Sub-dimension 2	108,72	5,14	108,82	9,43	17	,350	,731
	Total	213,94	9,03	214,33	13,62	17	,278	,784
CONTROL (n:20)	Sub-dimension 1	98,75	3,64	99,35	5,35	19	,698	,494
	Sub-dimension 2	94,80	5,18	95,40	6,59	19	1,27	,219
	Total	193,55	7,10	194,75	10,93	19	1,04	,309
PLACEBO (n:17)	Sub-dimension 1	99,35	4,21	101,82	7,39	16	2,22	,041*
	Sub-dimension 2	95,88	5,67	96,41	7,82	16	,824	,422
	Total	195,25	8,60	198,24	14,50	16	1,85	,083

Upon examining Table 9, although the difference between Turkish Expressive Language and Recipient Language (TIFALDI) posttest and follow-up test total scores in experiment, control and placebo groups was statistically significant on some sub-tests, it was not found statistically significant in total scores. As seen in the table, children in each groups had higher follow-up measurement average scores than posttest scores. However, according to the obtained findings, it is observed based on follow-up test that experiment-group children's both Turkish Expressive Language and Recipient Language (TIFALDI) Test sub-dimension and total scores were higher than those of children in control and placebo groups ($\bar{X}=214,33$; $\bar{X}=194,75$; $\bar{X}=198,24$). This finding shows that the treatment effect observed on experiment-group children's word and print awareness scores in posttest measurement sustained for the 4-month period up until the follow-up measurement. In addition, the research

hypothesis that *the increase in the expressive and recipient language skills of children who participated in the Family Based Literacy Preparation Program was higher than that in non-participant children's expressive and recipient language skills* was confirmed. Senechal and LeFevre (2002) conducted a 5-year longitudinal research with preschool and the 1st grade children, in order to examine the relationship between children's early literacy and recipient language skills and their home experiences. The researchers concluded that introducing books to children at home had important effects on listening skill and vocabulary development. In addition, a positive relationship between family participation in teaching children literacy and the development of early literacy skills was found. Sheridan, Knoche, Kupzyk, Edwards, and Marvin (2011), focusing on handicapped children's language and literacy skills, designed a parent responsibility program in order to facilitate those children's school readiness. The researchers concluded that the developed program affected children's expressive language skills directly. In a longitudinal research conducted by Evans et al. (2000), it was concluded that children whose families participated in literacy activities had higher vocabulary scores and attention levels, and were more interested in books, compared with the children whose families participated less in activities. Findings in longitudinal studies parallel the findings in this research. Literacy preparation programs for families have positive long-term effects on children and families.

Table 10 includes results of follow-up tests conducted in order to measure the permanence of experiment-group children's sound awareness skills.

Table 10. T-Test Results of Phonological Awareness Scale Posttest and Follow-up Test Scores in Experiment, Control, and Placebo Groups

Phonological AwarenessScale		Posttest		Follow-up Test				
		\bar{X}	Ss	\bar{X}	Ss	sd	t	p
EXPERIMENT (n:18)	Sub-dimension 1	6,05	1,05	6,55	,85	17	2,47	,024
	Sub-dimension 2	6,11	,90	6,67	,68	17	3,34	,004
	Sub-dimension 3	3,33	1,02	6,39	,84	17	9,04	,000
	Sub-dimension 4	5,44	1,79	6,00	2,00	17	2,75	,014
	Sub-dimension 5	6,22	1,31	6,33	1,28	17	,81	,430
	Total	27,17	4,45	31,94	4,90	17	9,52	,000*
CONTROL (n:20)	Sub-dimension 1	4,05	1,05	4,35	1,46	19	1,14	,267
	Sub-dimension 2	4,55	,94	4,95	1,23	19	1,90	,072
	Sub-dimension 3	3,40	1,09	4,35	1,04	19	2,97	,008
	Sub-dimension 4	2,70	1,03	3,25	2,07	19	1,64	,118
	Sub-dimension 5	2,95	1,09	3,70	1,30	19	3,00	,007
	Total	17,65	2,52	20,60	5,06	19	3,60	,002*
PLACEBO (n:17)	Sub-dimension 1	4,18	1,33	5,12	1,80	16	3,57	,003
	Sub-dimension 2	4,59	,87	5,41	1,50	16	2,54	,022
	Sub-dimension 3	2,94	,83	4,82	1,88	16	5,19	,000
	Sub-dimension 4	2,76	,90	3,53	1,66	16	2,01	,061
	Sub-dimension 5	3,41	,79	4,23	1,68	16	2,46	0,26
	Total	17,88	2,78	23,11	7,18	16	4,08	,001*

Upon examining Table 10, a significant difference of 0.05 between Phonological Awareness Scale posttest and follow-up test total scores in experiment, control, and placebo groups is observed [$t(17)=9,52$, $p<.05$; $t(19)=3,60$, $p<.05$; $t(16)=4,08$, $p<.05$]. It may be said that follow-up test scores increased because children were in a natural development process and they entered in a process of learning literacy. However, according to the obtained findings, it is observed based on follow-up test that experiment-group children's both Phonological Awareness Scale sub-dimension and total scores were

higher than those of children in control and placebo groups ($\bar{X}=31,94$; $\bar{X}=20,60$; $\bar{X}=23,11$). These findings seem to confirm that *the increase in the phonological awareness of children who participated in the Family Based Literacy Preparation Program was higher than that of non-participant children*. Evaluations conducted in Wood's (2002) study on parent-child preschool activities at home and their potential contributions in children's early literacy skills were re-conducted a year later. In the re-evaluations, it was found that the frequency of such activities at home was effective on reading achievement, vocabulary, memory, and phonological awareness. Informational notes about activities and suggestions to support children's literacy preparation skills were provided to families within the Family Based Literacy Preparation Program. After the program, families with opportunities to use activity models were able to support children's literacy preparation skills easily. It may be said that that was why the experiment-group children's follow-up test scores increased.

Table 11 includes the results of follow-up test conducted in order to measure the permanency of experiment-group children's word and print awareness skills.

Table 11. T-Test results of Word and Print Awareness Posttest and Follow-up Test Scores in Experiment, Control, and Placebo Groups

Word and Print Awareness Scale		Posttest		Follow-up Test				
		\bar{X}	Ss	\bar{X}	Ss	sd	t	p
EXPERIMENT (n:18)	Sub-dimension 1	15,17	1,69	15,22	2,02	17	,22	,826
	Sub-dimension 2	9,94	1,76	10,44	2,25	17	1,64	,120
	Total	25,11	3,29	25,67	4,01	17	1,16	,263
CONTROL (n:20)	Sub-dimension 1	10,05	1,19	11,70	3,10	19	3,31	,004
	Sub-dimension 2	5,50	1,32	6,90	3,08	19	2,96	,008
	Total	15,55	2,37	18,60	5,95	19	3,35	,003
PLACEBO (n:17)	Sub-dimension 1	9,82	1,94	11,41	3,82	16	2,76	,014
	Sub-dimension 2	5,88	1,41	7,59	3,35	16	3,12	,007
	Total	15,70	3,23	19,00	7,03	16	3,06	,008*

Upon examining Table 11, the difference between Word and Print Awareness posttest and follow-up test total scores in control and placebo groups was found statistically significant [$t(17)=8,45$, $p<.05$; $t(19)=7,06$, $p<.05$; $t(16)=6,75$, $p<.05$]. Experiment group's considerably high posttest scores may have led to the statistical insignificance of the difference between experiment group total posttest average scores and the follow-up test. As seen in the table, the average follow-up measurement scores of children in each three groups were higher than posttest scores. However, according to the obtained findings, it is observed based on follow-up test that experiment-group children's both Word and Print Awareness Test sub-dimension and total scores were higher than those of children in control and placebo groups ($\bar{X}=25,67$; $\bar{X}=18,60$; $\bar{X}=19,00$). This finding shows that the treatment effect observed on experiment-group children's word and print awareness scores in posttest measurement sustained for the 4-month period up until the follow-up measurement. In addition, the research hypothesis that *the increase in the word and print awareness skills of children who participated in the Family Based Literacy Preparation Program was higher than that of non-participant children* was confirmed. A significant difference in print awareness skill in favor of experiment group was found in Boyle's (2006) research aiming to educate Head Start parents with risk of reading challenges on children's daily phonological awareness and vocabulary activities.

Table 12 includes results of the follow-up test conducted in order to measure the permanence of visual perception skills of children in the experiment group.

Table 12. T-Test results of Frostig Visual Perception Posttest and Follow-up Test Scores in Experiment, Control, and Placebo Groups

Frostig Visual Perception Test		Posttest		Follow-up Test				
		\bar{X}	Ss	\bar{X}	Ss	sd	t	p
EXPERIMENT (n:18)	Sub-dimension 1	45,33	4,01	54,44	9,01	17	6,66	,000
	Sub-dimension 2	95,28	4,08	98,28	4,33	17	21,42	,000
	Sub-dimension 3	65,22	4,37	65,55	4,74	17	2,06	,055
	Sub-dimension 4	75,11	3,95	75,88	4,39	17	4,08	,001
	Sub-dimension 5	55,55	4,23	56,33	4,87	17	3,29	,004
	Total	336,50	20,46	350,50	26,14	17	8,45	,000*
CONTROL (n:20)	Sub-dimension 1	44,70	4,58	53,65	10,83	19	6,14	,000
	Sub-dimension 2	76,95	4,44	79,35	5,25	19	10,79	,000
	Sub-dimension 3	56,85	4,56	57,20	4,76	19	1,50	,149
	Sub-dimension 4	66,80	4,85	67,45	5,37	19	3,58	,002
	Sub-dimension 5	46,70	4,90	47,15	5,26	19	3,32	,004
	Total	292,00	23,11	304,80	30,67	19	7,06	,000*
PLACEBO (n:17)	Sub-dimension 1	44,70	4,92	54,35	10,58	16	6,29	,000
	Sub-dimension 2	77,06	79,70	5,30	6,08	16	11,71	,000
	Sub-dimension 3	56,47	5,26	56,47	5,50	16	,000	1,00
	Sub-dimension 4	66,23	5,09	66,94	5,83	16	3,43	,003
	Sub-dimension 5	46,18	5,42	46,76	6,22	16	2,58	0,20
	Total	290,65	25,87	304,24	33,49	16	6,75	,000*

Upon examining Table 12, a significant difference of 0.05 between Frosting Visual Perception posttest and follow-up test total scores in experiment, control, and placebo groups is observed [$t(17)=8,45$, $p<.05$; $t(19)=7,06$, $p<.05$; $t(16)=6,75$, $p<.05$]. It may be said that follow-up test scores increased because children were in a natural development process and they entered in a process of learning literacy. However, according to the obtained findings, it is observed based on follow-up test that experiment-group children's both Frostig Visual Perception Test sub-dimension and total scores were higher than those of children in control and placebo groups ($\bar{X}=350,50$; $\bar{X}=304,80$; $\bar{X}=304,24$). These findings seem to confirm that *the increase in the visual perception skills of children who participated in the Family Based Literacy Preparation Program was higher than that of non-participant children*. Swain, Brooks, and Bosley (2014), in their longitudinal study to determine perceptions and experiences of families who participated in a family literacy program, aimed to define short and long-term benefits of the program. Families were interviewed 12 weeks later upon completion of the program. Findings obtained in the research showed that these programs provided many long-term benefits to families, children, and society. Families putting the learned theoretical knowledge within the Family Based Literacy Preparation Program into practice with their children may have affected the permanence of the learned knowledge and skills. It may be said that the follow-up scores increased once the permanent information that the families acquired about how to support children's literacy preparation skills was reflected on children after the program.

Conclusion and Suggestions

When the effects of program on early literacy skills are examined, it was observed that there was a significant difference between phonological awareness scale sub-dimensions (being aware of sentences comprised of words, being aware of the possibility that words may be rhyming, that words may begin with the same letter, that the words are comprised of syllabi, and that the words may end with the same sound) and posttest average scores corrected for the total scale, based on groups. It was determined that experiment group had a higher average score than the control and placebo groups; the control group had the lowest score. The obtained findings showed that the Family Based Literacy Preparation Program was effective on children's phonological awareness skills.

Based on Frostig Visual Perception Scale sub-dimensions (Eye-Motor Coordination (EMC), Figure-Ground Perception (FGP), Perception of Form Constancy (FC), Perception of Position in Space (PPS), and Perception of Spatial Relationships (PSR)) and total scale scores, it was observed that there was a significant difference between experiment, control, and placebo groups, in favor of the experiment group. The obtained findings showed that the Family Based Literacy Preparation Program was effective on children's visual perception skills.

A significant difference between Turkish Expressive and Recipient Language Test sub-dimensions and the posttest average scores corrected for the total scale was determined. Posttest scores of experiment-group children were observed higher than those of children in control and placebo groups. The obtained findings showed that the Family Based Literacy Preparation Program was effective on children's expressive and recipient language skills.

Children's awareness levels associated with recognizing words and print concepts were defined through Word and Print Awareness Scale. Based on scale sub-dimensions and total scale scores, a significant difference between experiment, control, and placebo groups was observed in favor of the experiment group. The obtained findings showed that the Family Based Literacy Preparation Program was effective on children's word and print awareness skills.

When the permanence of program effect on children's literacy preparation skills was examined, it was observed that Family Based Literacy Preparation Program was effective on the development of children's sound awareness, visual perception, vocabulary, expressive and recipient language skills and this was a long-term effect. Suggestions developed based on research results are as follows: families must create the qualified environment to support their children's early literacy skills. Home environment may be organized so as to support children's early literacy skills (i.e., setting up a bookshelf that children can reach or using written labels in the child's room). Families may be referred to trainings by public education centers, national education agencies, and NGOs about the subjects that they need, such as within-family communication or communication with the child. Families may request assistance by teacher about how to support their children's early literacy skills. Beside structured activities, families may be recommended to seize daily opportunities developing to talk to their children in order to support early literacy skills. Families must organize trips to informal learning environments such as library, book store, museum, and zoo and create learning opportunities during these trips (i.e., asking open-ended questions about an encountered object or activity in the visited places in order to obtain children's opinions and organizing art works after trips). Families may be recommended to develop strategies to increase cooperation with preschool teachers and receive support from them about literacy preparation for children. Longitudinal studies may be conducted to investigate literacy development of children participating in family literacy programs. Defining the long-term program effects depends on tracking children's first grade literacy skills. Program effects on not only early literacy skills but also children's social and emotional development may be studied.

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